GE Hitachi Nuclear Energy

Advanced Boiling Water Reactor (ABWR)

fact sheet

Technology, Schedule, and Cost Confidence

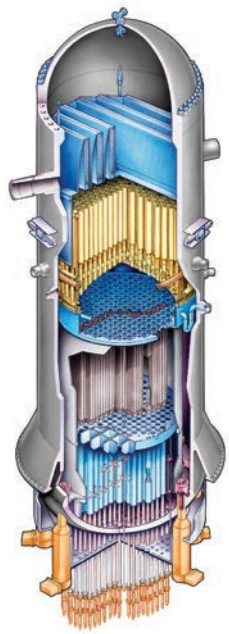
The Advanced Boiling Water Reactor (ABWR) is the foundation of GEH's nuclear reactor portfolio. The Gen III design is available today to meet power generation needs ranging from 1350 to 1460 MW net. It delivers proven advanced technology and competitive economics.

ABWR already has an impressive track record. It is the world's first and only Generation III nuclear plant design in operation today, providing the benefit of a combined 20 reactor-years of operational experience. GEH's first ABWR began commercial operation at Kashiwazaki-Kariwa in Japan, in 1996. Three additional ABWRs are operating in Japan with two more under construction in Japan, and two in Taiwan. The ABWR is licensed in the U.S., Japan and Taiwan.

The ABWR is a direct cycle Light Water Reactor that reflects 50 years of continued evolution from GEH's initial BWR concept—combining the best features from our worldwide BWR fleet. Our well-established, global supply chain is already qualified and prepared today to support deployment of new nuclear power plants.

Benefits and Features of the ABWR

- Lowest-in-Class core damage frequency at power (1.6×10^{-7}/year)
- Standardized design capable of further uprates
- 60-year Design life
- Modularized design to optimize construction schedule
- Demonstrated capital and O&M cost structure in Japan
- Significantly lower in staffing and maintenance costs per kWh than the current U.S. installed base of Gen I and II nuclear reactors



Simpler yet Safer Design with Advanced Technology

- **Reactor internal pumps** – eliminates external recirculation systems
- **Integrated containment and reactor building** – improved seismic response, compact, and easier to construct
- **Compact reactor building** – less construction material and shorter construction times
- **Optimized modularization** – module designs refined and proven in real installations
- **Sophisticated control systems** – fully digital, providing reliable and accurate plant monitoring, control, and diagnostics
- **High integrity fuel, improved water chemistry, and radiation source elimination** – reduced radwaste and occupational exposure

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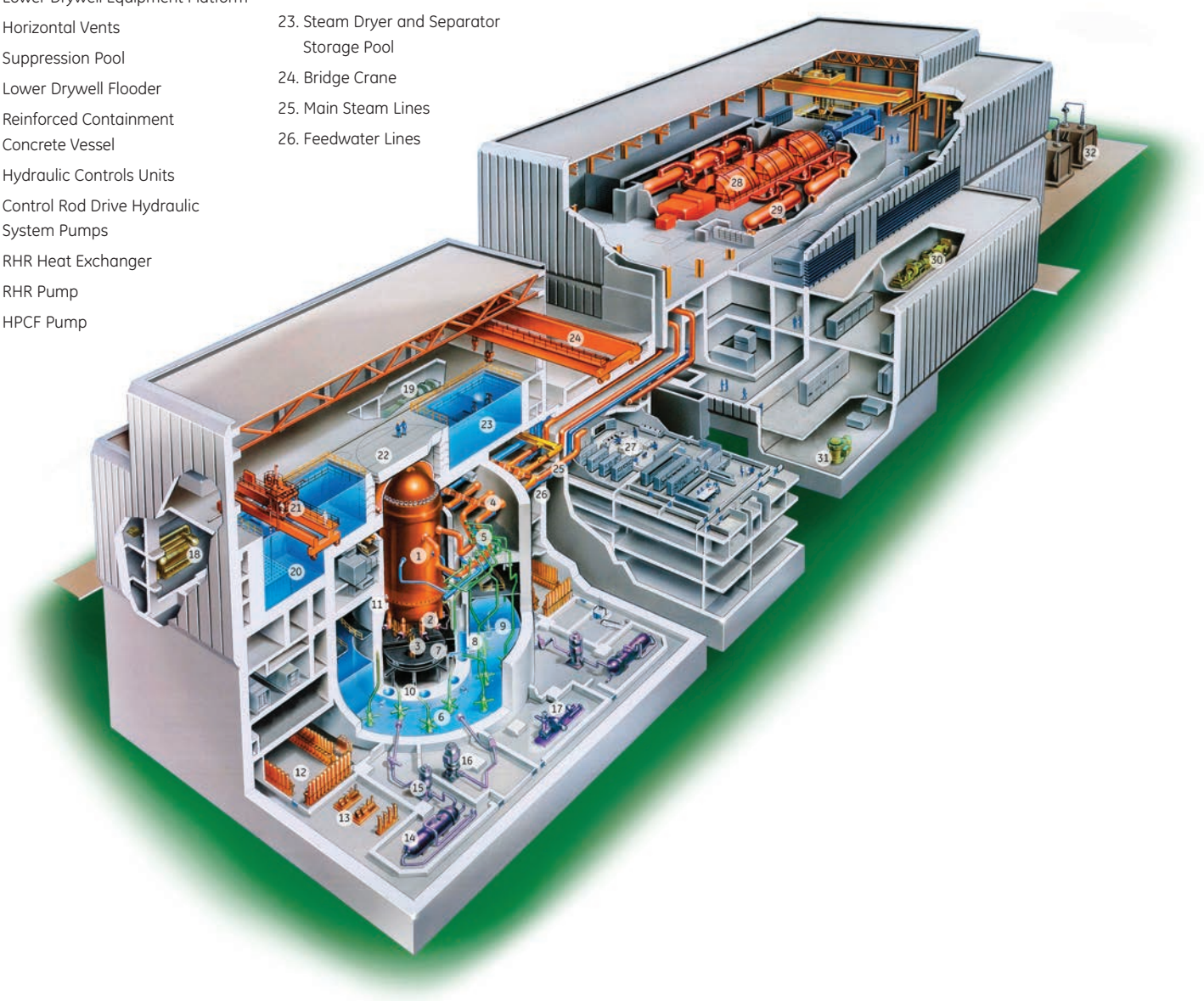
ABWR Plant Layout

1. Reactor Pressure Vessel
2. Reactor Internal Pumps
3. Fine Motion Control Rod Drives
4. Main Steam Isolation Valves
5. Safety/Relief Valves (SRV)
6. SRV Quenchers
7. Lower Drywell Equipment Platform
8. Horizontal Vents
9. Suppression Pool
10. Lower Drywell Flooder
11. Reinforced Containment Concrete Vessel
12. Hydraulic Controls Units
13. Control Rod Drive Hydraulic System Pumps
14. RHR Heat Exchanger
15. RHR Pump
16. HPCF Pump
17. RCIC Steam Turbine and Pump
18. Diesel Generator
19. Standby Gas Treatment Filter and Fans
20. Spent Fuel Storage Pool
21. Refueling Platform
22. Shield Blocks
23. Steam Dryer and Separator Storage Pool
24. Bridge Crane
25. Main Steam Lines
26. Feedwater Lines
27. Main Control Room
28. Turbine-Generator
29. Moisture Separator Reheater
30. Combustion Turbine Generator
31. Air Compressor and Dryers
32. Switchyard



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